

### Abstract of the Disclosure

A RRAM memory cell is formed on a silicon substrate having a operative junction therein and a metal plug formed thereon, includes a first oxidation resistive layer; a first refractory metal layer; a CMR layer; a second refractory metal layer; and a second oxidation resistive layer.

- 5 A method of fabricating a multi-layer electrode RRAM memory cell includes preparing a silicon substrate; forming a junction in the substrate taken from the group of junctions consisting of N<sup>+</sup> junctions and P<sup>+</sup> junctions; depositing a metal plug on the junction; depositing a first oxidation resistant layer on the metal plug; depositing a first refractory metal layer on the first oxidation resistant layer; depositing a CMR layer on the first refractory metal layer; depositing a second refractory metal layer on the CMR layer; depositing a second oxidation resistant layer on the
- 10 second refractory metal layer; and completing the RRAM memory cell.